FC-PF- 224

PESTICIDE FORMULATION & RESIDUE ANALYTICAL CENTRE, PMD, NIPHM, HYDERABAD

Sr. No. in Scope

NABL / NON NABL

Flow chart of Alkalinity test for Wettable Powder (WP) & Dusting Powder (DP) formulation

Date of Analysis	

Sr. No.	Step	Execution	Executed By
1.	Sample No.		
2.	Name of Sample		
3.	**Procedure**		
3.1	**Sample Titration**		
3.1.1	Weigh 10 g of sample in 250 ml beaker.	g	
3.1.2	*Note the serial No. of the balance log book*		
3.1.3	Add 25 ml of acetone and mix well. Warm the flask gently		
3.1.4	Add 75 ml of water and let it stand for an hour. Filter the supernatant aqueous extract.		
3.1.5	Pipette out 50 ml of filtrate (3.1.4.) into a 250 mL conical flask		
3.1.6	Titrate with 0.05 N HCl solution using methyl red or bromocresol purple indicator		
3.1.7	Note down the burette reading	mL	
3.2	**Blank titration**		
3.2.1	Prepare a solution of 25 ml acetone and 75 ml distilled water in a 250 ml conical flask		
3.2.2	Pipette out an aliquot of 50 ml from the solution 3.2.1		
3.2.3	Add indicator Bromocresol purple / Methyl Red		
3.2.4	Neutralise with 0.05 N NaOH (if blank sample is acidic)/ 0.05 N HCl (if blank sample is alkaline)		
3.2.5	Note down the burette reading	mL	
3.3	**Normality of Sodium hydroxide**		
3.3.1	Weigh 0.3- 0.4 g of GR grade Potassium hydrogen phthalate (KHP) in a conical flask.	g	
3.3.2	*Note the serial No. of the balance log book*		
3.3.3	Add 75 ml distilled water and 2-3 drops of phenolphthalein indicator and titrate with 0.05 N NaOH taken in burette.		
3.3.4	Note the burette reading	mL	
3.4	**Normality of Hydrochloric acid**		
3.4.1	Weigh 0.1 g of GR grade Sodium carbonate (Na_2CO_3) in 250 ml conical flask.		
3.4.2	*Note the serial No. of the balance log book*		
3.4.3	Add 25-30 ml distilled water and 2-3 drops of methyl orange indicator and titrate with 0.05 N HCl taken in the burette.		
3.4.4	Note the burette reading	mL	

FC-PF- 224

PESTICIDE FORMULATION & RESIDUE ANALYTICAL CENTRE, PMD, NIPHM, HYDERABAD

4. Calculation:

i) Normality of NaOH = $\frac{\text{Wt. of KHP} \times 1000}{\text{Burette Reading} \times 204.22}$ =

204.22 = Equivalent Weight of KHP

ii) Normality of HCl = $\frac{\text{Wt. of } Na_2CO_3 \times 1000}{\text{Burette Reading} \times 53}$ =

53 = Equivalent Weight of Na_2CO_3

In case blank is Alkaline

iii) Alkalinity (as NaOH) % by mass = $\frac{4.0X2\ (V - B) \times N_1}{M}$	Where, B =Volume of HCl required for Blank. V = Volume of HCl required for the test sample N_1= Normality of standard HCl solution M = Mass in 'g' of the sample taken for test

In case blank is Acidic

iv) Alkalinity (as NaOH) % by mass = $\frac{4.0X2\ (VN_1 + vN_2)}{M}$	Where, V = Volume of HCl required for the test sample v = Volume of NaOH required for blank titration N_1= Normality of standard HCl solution N_2= Normality of standard NaOH solution M = Mass in 'g' of the sample taken for test

Sr. No.	Name of test	Result	Unit	Method of Analysis
1.	Alkalinity		%	**IS : 6940 - 1982**

Remark / Reference :

Analyzed by	Name	
	Dated signature	
Checked by	Name	
	Dated signature	

Document No.	:	FC-PF-224	Document Name	:	Flow chart of Alkalinity test for Wettable Powder (WP) & Dusting Powder (DP) formulation
Revision No.	:	03	Issue Date	:	1/07/2011
Revised Date	:	11/11/2013	Next Revision Date	:	11/11/2015

Prepared By	Checked By	Approved & Issued By
Mrs. C. Vijayalakshmi (Asst. Plant Protection Officer)	Mr. C.V. Rao (Technical Manager)	Dr. Abhay U. Ekbote (Director PM & Quality Manager)